

Art Unit: 3743

Remarks/Arguments

On page 2 of the Action, claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. in view of Hasegawa et al.

On page 3 of the Action, claim 5 was rejected under 35 U.S.C. 103(a) as being unpatentable over Conn et al. in view of Hasegawa et a.

In reply thereto, applicant has amended the claims to define applicant's invention more clearly over the prior art of record.

As clearly defined in the amended claims, applicant's invention comprises each tube having a sacrifice layer as an outer surface thereof and a plurality of recessed portions that are formed on the each tube so as to have a constant sectional area along an entire length of the each tube and filled with a brazing material to join the sacrifice outer surfaces of the recessed portions, thereby reinforcing the each tube. In addition, the sacrifice outer layer, which is made of an Al-Zn alloy, not only improves the corrosion resistance but also reduces the thickness and weight and material costs of the tube.

With respect to the prior art, Kato et al. disclose a heat exchanger comprising beads 21 and recesses 21a.

Hasegawa et al. disclose a brazing sheet having an excellent corrosion resistance for use in a heat exchanger,

Art Unit: 3743

which comprises a core member, an intermediate member, and a pair of Al-Si-Mg cladding members.

Conn et al. disclose a heat exchanger comprising aluminum tubes having a lockseam construction utilizing a flux-containing composition.

However, none of the above references disclose or suggest any tube having a sacrifice outer surface and a recessed portion formed on the tube so as to have a constant sectional area along the entire length of the tube and filled with a brazing material to join the sacrifice outer surfaces of the recessed portion, thereby reinforcing the tube.

As best shown in Fig. 10, Kato's recess 21a, 21 has a varying cross section along the length of the tube and is too wide to fill with a brazing material especially in the middle section.

In addition, none of the above references disclose or suggest any sacrifice outer surface of the tube which is made of an Al-Zn alloy. The tubes of the above references have a layer of brazing material, such as Al-Si, as an outer surface of the tube that is a different composition from the Al-Zn composition of the sacrifice layer.

For these reasons, it is submitted that applicant's invention as recited in claims 1-7 is patentable over Kato et al. or Conn et al. in view of Hasegawa et al.

Art Unit: 3743

The prior art made of record and not relied upon does not appear to be any more pertinent with respect to the amended claims.

In view of the foregoing, it is respectfully requested that this application be reconsidered, claims 1-7 allowed, and the case passed to issue.

Respectfully submitted,

TAKEUCHI & TAKEUCHI

A handwritten signature in cursive script, reading "Y. Takeuchi".

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